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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,454	01/27/2004	Tatsuhiko Saitoh	50395-247	8678

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McDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER
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DEGHAN, QUEENIE S

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/764,454

Applicant(s)

SAITOH ET AL.

Examiner

Queenie Dehghan

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7/17/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1 to 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arimondi et al. (2005/0072192) in view of Nagayama et al. (2002/0059816 and 6,400,878). Regarding claims 1 and 2, Arimondi et al. disclose a method for preparing an optical fiber perform having through holes to be formed into air holes and drawing the optical fiber perform into a fiber with the air holes ([0001], [0005], [0026], figure 1). However, Arimondi et al. do not disclose a third step of heated the optical fiber in an additional furnace. Nagayama et al. (878) teach of a step of heating the optical fiber to a temperature of 1100°C for 3 seconds (col. 12 lines 64-67) in an additional heating

Art Unit: 1731

furnace located downstream of a drawing furnace (col. 5 lines 46-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the fiber to 1100°C for 3 seconds in an additional furnace, as taught by Nagayama et al, in the fiber drawing process of Arimondi et al. in order to ensure proper annealing, as taught by Nagayama et al.

4. Regarding claims 3 and 4, Arimondi et al. do not disclose a minimum temperature of the fiber between the drawing and heating furnaces. Nagayama et al. (816) teach the use of two furnaces, a drawing and heating furnace, for forming an optical fiber, where an optical fiber usually cools to about 400°C after being drawn ([0010]). Furthermore, Nagayama et al. teach cooling the fiber with air between the drawing and heating furnaces ([0058]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the fiber to 1100°C as mentioned in claim 1, which is higher than the air-cooled down temperature of 400°C, as disclosed by Nagayama et al. in order to properly anneal the fiber.

5. Regarding claims 5 and 6, Nagayama et al. (816) teach of a drawing furnace filled with helium gas and a heating furnace filled with nitrogen gas ([0058], [0063]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use helium gas in the drawing furnace and nitrogen gas in the heating furnace, as taught by Nagayama et al. in the drawing process of Arimondi et al. and Nagayama et al. (878), in order to provide the atmospheres needed to soften and anneal the glass fiber with a lowered transmission loss and whose outer diameter is restrained from fluctuating, as taught by Nagayama et al.

6. Regarding claim 7, Arimondi et al. disclose a method for making fiber with holes, where the fiber holes may contain a gas or air ([0056]). Arimondi et al. also disclose a thermal treatment step of the optical fiber perform in the presence of oxygen ([0107]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to treat the perform in the presence of oxygen to remove impurities, as disclosed by Arimondi et al. and to inherently expect that the holes in the perform would have oxygen in them, since it was exposed to oxygen in the treatment step.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arimondi et al. (2005/0072192) in view of Nagayama et al. (6,400,878) as applied to claim 1 above, and further in view of Kuwahara et al. (2002/0174692). Arimondi and Nagayama do not disclose a drawing temperature. Kuwahara et al. teach of drawing step at 1950°C. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilized the drawing temperature of Kuwahara et al. in the fiber making process of Arimondi et al. and Nagayama et al. in order to properly soften the glass for drawing.

### ***Response to Arguments***

8. Applicant's arguments filed July 17, 2006 have been fully considered but they are not persuasive. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one

of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as one skilled in the art would know, there are many ways to make many types of optical fiber and there are many features and characteristics inherent in the process and product that need to be monitored and controlled, such as Rayleigh scattering intensity. Arimondi teaches one such embodiment of optical fiber, particularly an optical fiber with air holes. Arimondi also presented the many components that a drawing tower comprises including an *optional* cooling device, which incidentally is used downstream and is related to the coating process. Nagayama et al. addresses the general concern of reducing Rayleigh scattering intensity within optical fibers and presents a method for do so (col. 1 lines 9-15, 27-39). In fact, the prevention of Rayleigh scattering is a similar concern proposed by the applicant (page 4). Furthermore Nagayama et al. teach reducing Rayleigh scattering intensity by annealing optical fibers as it is drawn by placing an additional heating furnace underneath the drawing furnace and before a coating process (col. 2 lines 47-63). Therefore, the motivation presented by Nagayama et al. to ensure proper annealing, and hence reduce Rayleigh scattering with optical fibers, is an obvious improvement on the drawing process of Arimondi and addresses the same concern as the disclose by the applicant. Arimondi does no teach away from positioning any heating furnace downstream of the furnace, but in fact is the shortcoming that Nagayama et al. presents with motivation to address.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Foster et al. (2003/0200772) disclose a drawing furnace and an additional heating furnace used for forming an optical fiber.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1731

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
STEVEN P. GRIFFIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

Q Dehghan